

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
28 April 2005 (28.04.2005)

PCT

(10) International Publication Number
WO 2005/038937 A1

(51) International Patent Classification⁷: **H01L 33/00**

(74) Agent: **HAW, Yong-Noke**; 8th Fl. Songchon Bldg.,
642-15 Yoksam-dong, Kangnam-gu, Seoul 135-080 (KR).

(21) International Application Number:
PCT/KR2004/002606

(22) International Filing Date: 13 October 2004 (13.10.2004)

(25) Filing Language: **Korean**

(26) Publication Language: **English**

(30) Priority Data:
10-2003-0071633 15 October 2003 (15.10.2003) **KR**

(71) Applicant (for all designated States except US): **LG IN-
NOTEK CO., LTD [KR/KR]**; 14th Fl. Hansol Bldg., 736-1
Yoksam-dong, Kangnam-gu, Seoul 135-983 (KR).

(72) Inventor; and

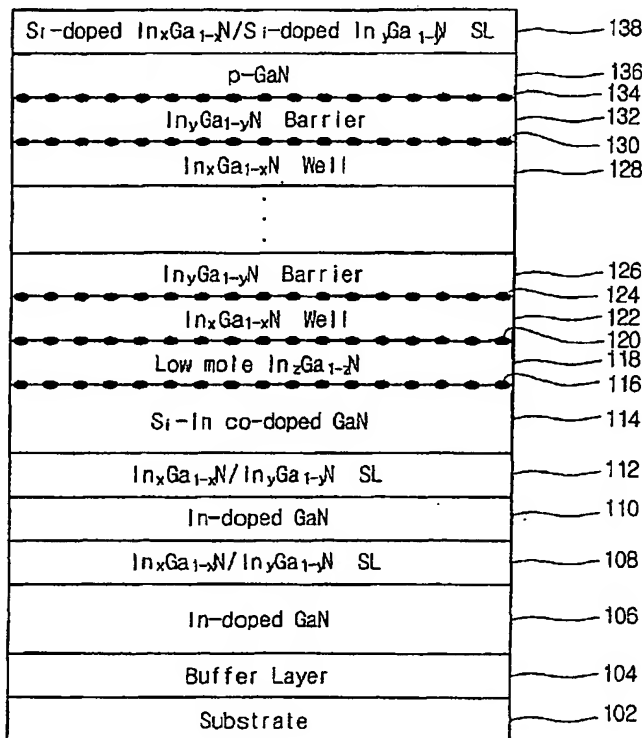
(75) Inventor/Applicant (for US only): **LEE, Suk-Hun**
[KR/KR]; 705-502 Line7th Apt. Wolgae-dong,
Gwangsan-gu, Gwangju-si 506-302 (KR).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, GR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG,
MK, MN, MW, MX, MY, NA, NI, NO, NZ, OM, PG, PH,
PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,

[Continued on next page]

(54) Title: **NITRIDE SEMICONDUCTOR LIGHT EMITTING DEVICE**



(57) Abstract: A nitride semiconductor light emitting device is provided. The nitride semiconductor light emitting device includes: an n-type nitride semiconductor layer; an In-containing super lattice structure layer formed above the n-type nitride semiconductor layer; a first electrode contact layer formed above the super lattice structure layer; a first cluster layer formed above the first electrode contact layer; a first In-containing nitride gallium layer formed above the first cluster layer; a second cluster layer formed above the first In-containing nitride gallium layer; an active layer formed above the second cluster layer, for emitting light; a p-type nitride semiconductor layer formed above the active layer; and a second electrode contact layer formed above the p-type nitride semiconductor layer.

WO 2005/038937 A1

WO 2005/038937 A1



SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

— with international search report